

# REMARKS

Applicant has carefully considered the Office Action of June 15, 2004 rejecting claims 1-15 and 17-20. The Applicant wishes to express his appreciation to the Examiner for the interview conducted by the undersigned, Applicant's attorney, on August 11<sup>th</sup>, 2004. The present response is intended to implement the conclusions of the interview, and fully address all points of objection raised by the Examiner, and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

Claims 1, 5, 7, 12, 14, 18 and 20 have been amended. Claim 16 was previously cancelled, and 8 has now been cancelled. Therefore, claims 1-7, 9-15, and 17-20 remain in the case.

The present invention discloses a method to produce puncturable beverage pouches made of a multi-layered laminate web material. The pouches have a specific area of weakness, designed for ease of puncture, by a pointy drink straw, with puncture being far easier than in the prior art, as stated in the spec., on p.4, line 22. The Applicant has in past conducted studies (not included) which show that the specific weakness point is 30% weaker than weakness points seen in prior art drink pouches. The integrity of the pouch is nevertheless retained so that no leakage of liquid contents occurs during transport and storage of the filled pouches.

The specific point of weakness is produced by two different methods (herein described as Methods 1, 2):

**Method 1a)** In one embodiment, a hole is punched in the outer three layers of the laminate, as shown in Fig. 4, and the hole is occluded using a layer of

molten polyethylene extruded upon the entire inner surface of the pouch.

**Method 1b)** Alternatively, as shown in Fig. 6, the hole is punched through two outer layers of the laminate, one molten layer of polyethylene occludes the hole, and then a second inner layer of polyethylene is added for strength. This embodiment results in a pouch which is harder to puncture than that seen in Fig. 4, yet it is more resilient and thus will withstand greater forces during transport and handling.

Claim 1 has presently been amended to define the point of weakness as an integrally formed part of the pouch, which is created during the manufacturing process with only a punching station necessary, and no extraneous material or machinery is necessary. The manufacturing process remains uninterrupted by the formation of the hole.

**Method 2)** In a second embodiment, claimed in claim 5, a movable laser is utilized to form the specific point of weakness upon the final multi-layered web laminate (or upon the final pouch). The laser is moved to create several intersecting lines (for instance, an "X" shape may be created, or an asterisk shape), with the point of weakness being at the intersection of these lines. At that point the pouch material has been double-scored or multi-scored by several passes of the laser. Page 6, line 12 states "the effect on the sealant layer is strongest where the laser lines intersect and provides a focal weakness in the flexible web material". At the double-scored intersection point, the external structural layer is scored, and thermal changes have been measured in the inner layers as well, since heat is transmitted at

the intersection point to all layers of the laminate (see page 11, para. 2). The amendment to claim 5 describes the presence of thermal changes occurring at the weakened puncture point. No such heat effect has been described in prior art laser-scored packaging materials.

The double-scoring of the puncture point per the present invention provides the drink bag with a far weaker puncture point than prior art drink bags. In prior art drink bags, the puncture point is generally not sufficiently weakened, so that in attempting to insert the pointy drink straw, it bends and breaks instead of entering the bag. The invention solves this problem.

The Examiner has rejected all pending claims under Sec. 103(a) as being anticipated by Wild (5,868,658) in view of Yoshida (4,762,514) and in view of Heller (3,459,625), or as being anticipated by Yoshida in view of Huizinga (5,001,325).

Yoshida teaches use of a laser for creating a weakness point upon a drinking pouch, however there is no disclosure of double-scoring of the pouch material, since the laser is shined at the pouch through a cut-out mask. See col. 2, line 17, which describes the scoring as being made "...by means of a laser which is directed at the bag through a mask having the desired pattern". Thus, even though a laser-scored "X" shape can be created on the pouch by placing a metal mask having a cut-out "X" in the laser beam path, to allow the beam to pass through it, the resultant laser-scored "X" on the pouch will be uniformly weakened over the shape of the "X". The laser beam in Yoshida does not pass over the center of the "X" more than once, and there is no intersection of a plurality of beams and no double scoring.

Referring to page 3, paragraph 2 of the Office Action, in Yoshida there is no physical hole that is

occluded using molten sealant. The sealant described in column 3, line 19 is present between each of the layers of the multi-layered pouch and acts to bind them together, as is common practice in most multi-layered web laminates for drinking pouches. The Applicant likewise utilizes adhesive or molten sealant between the structural layer and the air-barrier layer to bind these layers together. In Yoshida, small perforations are made in the external structural layer, however these are made by applying a laser externally on the final multi-layered web laminate.

In contrast, in the Applicant's embodiment described above (at the bottom of page 7) as Method 1, an integrally-formed hole is created during the manufacture of the web laminate by punching through several of the layers then occluding with molten sealant.

Wild (5,868,658), cited against the application under Sec. 103(a), describes use of a closure sheeting web to seal a hole which extends throughout all layers of the web laminate. All layers of the multi-layered web laminate are punched through (see col. 3, lines 38-40) then a closure sheeting web (2) is welded as a patch upon the hole, to seal it. See Fig. 3, in which four rolls (13) of closure sheeting web (2) are conveyed over the entire width of the drink bag, and not only over the area of each hole (32).

Similarly, in col. 5, lines 29-35, the closure sheeting web is described as extending to the edges of the bag (where they may be sealed again along with the outer perimeter of the bag), and as being weld-able across the entire area of the closure sheeting web (which extends way beyond the hole). The area having the closure sheeting web is thus thickened, and much material is wasted. A welding procedure needs to be performed to

seal the patch, therefore welding machinery needs to be included in the process, adding further cost to the manufacture.

In contrast, in the present application the hole and its closure are integral to the web laminate, thus providing better reliability and strength. No extra material is used, since the molten sealant is half of the thickness which is commonly used in the prior art (45 microns). The amendment to claim 1 stresses that in the present invention, since the hole and its closure are integrally formed there is no need for an additional closure sheeting patch.

The Examiner has taken Official Notice that extruded layers are equivalent to dry layers (page 3, last para. of the Office Action). This is not the case. When dry layers are utilized, adhesive is always added between the layers so that the layers are bound, and the web laminate is structurally sound.

In the Applicant's previous attempts, they punched holes in the web laminate and then attempted to seal them using dry layers with adhesive between the layers. However, the adhesive leaked through the holes and gummed up the manufacturing machinery. Recall that the entire procedure takes place upon a conveying system in a continuous uninterrupted process.

Only molten sealant such as polyethylene is sufficiently viscous enough to occlude and seal the holes without oozing out the external side of the bag and smearing itself upon the conveyor system and upon unwanted external areas of the bag. Refer to Fig. 6, where the layer of molten sealant (25) is extruded or spread onto the hole (27) where it enters a certain portion of the hole (27) (shaded area), yet does not extend throughout the entire depth of the hole (the hole

present in layer 21 is not filled with the sealant). The molten sealant must not leak out through the "far", external side of the bag. Use of molten polyethylene is thus non-obvious and has not been used before to occlude a pre-punched hole.

Huizinga (5,001,325), cited against the application under Sec 103 (a), discloses use of a movable laser for scoring packaging materials in patterns which are more complex in shape than had been previously been used. Prior to Huizinga, lasers were relatively stationary and could not execute complex scoring patterns such as elliptical shapes for improved aesthetic appearance (for instance as on a tissue box). Scoring in prior art was only as a straight tear line along the edge of a packet (such as a soup packet). Huizinga described use of either two or more stationary lasers, or a movable laser to allow complex scoring patterns and shapes.

For instance, he describes complex scoring in several dimensions along a finished cigar box (Figs. 7, 8). However, there is no mention of double scoring in Huizinga, and no suggestion to cross the beam path or make several passes to form a central focal weakness point at the intersection of the beams. That is novel to the present application.

The patent to Heller (3,459,625) discloses a method designed to strengthen "windows" in cartons, and thereby to ensure no leakage. Heller does not create a specific area of weakness designed for ease of puncture.

In summary, the foregoing amendments to the claims serve to distinguish them over the prior art. The issue of the punched hole and its occluding layer being formed as an integral part of the bag during manufacture has been addressed in claim 1, without the need of an additional closure sheeting patch.

The amendment to claim 5 aims to functionally describe how double-scoring at the intersection of the beam paths alters the bag at the intersection point. There, the external structural layer is scored, and heat transmission changes the internal layers, so that they are weakened as well. Heat does not similarly accumulate and induce changes in inner layers in prior art single scoring.

The features of the present invention, recited in the dependent claims, are deemed to be patentable as being based on independent claims 1 and 5, which are deemed patentable.

In citing the references under Sec. 103(a), the question is raised whether the references would suggest the invention, as stated in the decision of *In Re Lintner* (172 USPQ 560, 562, CCPA 1972);

"In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the references before him to make the proposed substitution, combination or other modification."

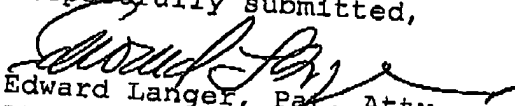
Similarly, *In Re Regel* (188 USPQ 136, CCPA 1975) decided that the question raised under Sec. 103 is whether the prior art taken as a whole would suggest the claimed invention to one of ordinary skill in the art. Accordingly, even if all the elements of a claim are disclosed in various prior art references, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill would have been prompted to combine the teachings of the references to arrive at the claimed invention.

Simply put, and as stated in Re Clinton (188 USPQ 365 CCPA 1976), "do the references themselves... suggest doing what appellants have done", such that there is a requirement that the prior art must have made any proposed modification or changes in the prior art obvious to do, rather than obvious to try.

It is respectfully put forward by the Applicant that there is no reason to consider the prior art references, Wild, Heller, Huizinga and Yoshida, either individually or in combination, as rendering the invention obvious, since none of them discloses a method in which punched holes are occluded by extrusion lamination that simultaneously covers the entire surface of the front side web, while maintaining the thickness of the final product. In addition, none of them discloses a process of weakening the material using a movable laser that enables more than one pass over the same point, weakening the area of the structural layer beneath the puncture point, by at least doubly scoring the puncture point.

In view of the foregoing remarks, all of the claims in the application are deemed to be allowable. Further reconsideration and allowance of the application is respectfully requested at an early date.

Respectfully submitted,

  
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